

Fall 2005/Spring 2006 Fire Weather Operations Plan

for Eastern

Kentucky



*National Weather Service
Forecast Office
Jackson, KY*

TABLE OF CONTENTS

	PAGE
Table of Contents	2
Fire Weather Organizational Directory	4
NWS Telephone Numbers and Internet Access	5
User Contact Information	7
Introduction	9
New for 2005	9
Forecast Areas	10
Fire Season	10
Issuance Time of Fire Weather Planning Forecast	10
Content of Fire Weather Planning Forecast	10
Individual Station Forecasts	15
Spot Forecasts	18
Methods of Communication	21
Red Flag Forecasts	21
Verification of Red Flag Forecasts	23
NOAA Weather Radio	23
Fire Weather Observations	24

Mobile Unit Services Overview	24
Request and Dispatch of an Incident Meteorologist (IMET)	24
Fire Weather Station Visits	27
Training	27
Attachments:	
Fire Weather Areas of Responsibility	28
NFDRS Stations	29
NFSDRS Weather Station Numbers	30
NOAA All Hazards Radio Information for Kentucky	31
Examples of Fire Weather Products from The Jackson Office:	
Fire Weather Planning Forecast (FWF)	35
Daily Station Forecast (FWM)	38
Red Flag Warning (RFW)	39
Prescribed Burn/Spot Forecast (FWS)	40
Prescribed Burn/Spot Forecast Form D-1	41
NOAA All Hazards Radio Coverage Map	43
Memorandum of Agreement	44
Signature Page	60

Fire Weather Organizational Directory 2005

National Weather Service Office, Jackson
1329 Airport Rd.
Jackson, KY 41339

Meteorologist in Charge
Shawn B. Harley shawn.harley@noaa.gov

Fire Weather Program Leader
Jon Pelton (IMET) jonathan.pelton@noaa.gov

Tony Edwards (IMET Trainee) tony.edwards@noaa.gov

John Jacobson (IMET Trainee) john.jacobson@noaa.gov

National Weather Service, Louisville
6201 Theiler Lane
Louisville, KY 40229

Meteorologist in Charge
John Gordon John.Gordon@noaa.gov

Fire Weather Program Leader
Joe Ammerman joseph.ammerman@noaa.gov

National Weather Service, Paducah
8250 U.S. Highway 60
West Paducah, KY 42086

Meteorologist in Charge
Beverly Poole beverly.poole@noaa.gov

Fire Weather Program Leader
Kelly Hooper kelly.hooper@noaa.gov

Greg Meffert (IMET) kelly.hooper@noaa.gov

National Weather Service, Wilmington
1901 South State Route 134
Wilmington, OH 45177

Meteorologist in Charge
Kenneth Haydu kenneth.haydu@noaa.gov
Fire Weather Program Leader
John J. Franks (IMET) john.j.franks@noaa.gov

National Weather Service, Charleston
400 Parkway Road
Charleston, WV 25309

Meteorologist in Charge
Alan Rezek alan.rezek@noaa.gov

Fire Weather Program Leader
Dan Bartholf daniel.bartholf@noaa.gov

Assistant Fire Weather Program Leader
Kari Fleege (IMET) kari.fleege@noaa.gov

Telephone Numbers and Internet Access

WFO Jackson

Fire Weather Forecaster
1-606-666-8000
1-606-666-4168 (fax)

Internet Access:
<http://www.crh.noaa.gov/jkl/firewx/fire.php>

Prescribed Burn or Spot Forecast Request Page:
<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=jax>

WFO Louisville

Fire Weather Forecaster
1-502-989-8842
1-502-968-5663 (fax)

Internet Access:

<http://www.crh.noaa.gov/lmk/firewx.htm>

Prescribed Burn or Spot Forecast Request Page:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=lmk>

WFO Morristown

Fire Weather Forecaster

1-423-586-3771

1-423-586-4931 (fax)

Internet Access:

<http://www.srh.noaa.gov/mrx/firewx.htm>

Prescribed Burn or Spot Forecast Request Page:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=mrx>

WFO Paducah

Fire Weather Forecaster

1-270-744-6440

1-270-744-3828 (fax)

Internet Access:

<http://www.crh.noaa.gov/pah/forecast/firewx.shtml>

Prescribed Burn or Spot Forecast Request Page:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=pah>

WFO Wilmington, Ohio

Fire Weather Forecaster

1-937-383-0031

1-937-383-0033 (fax)

Internet Access:

<http://www.nws.noaa.gov/er/iln/fireweather.htm>

Prescribed Burn or Spot Forecast Request Page:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=iln>

WFO Charleston, West Virginia

Fire Weather Forecaster
1-304-746-0180
1-304-746-0193 (fax)

Internet Access:

<http://www.nws.noaa.gov/er/rlx/firewx.html>

Prescribed Burn or Spot Forecast Request Page:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=rlx>

User Contact Information:

Kentucky Interagency Coordination Center
1700 Bypass Road
Winchester, KY 40391
859-745-3100

Internet Access:

<http://www.southernregion.fs.fed.us/boonefire>

Kathleen Kennedy, Assistant Forest Fire Management Officer
859-745-3142

Angela Taulbee Graham, Logistics Coordinator
606-878-7430

Bonny Truett, Interagency Assistant Center Manager
859-745-3172

Dave Mertz, Fire Management Officer
859-745-3192

Robin Acciardo, Forest Dispatcher
859-745-3171

Jeff Smith, Forest Technician III/Coordination Center State
Liason
859-745-3185

Southern Interagency Fire Cache
788 Sublimity School Road
London, KY 40744
606-878-7430/606-878-5817 Fax: 606-864-9559

Ken Huff, Cache Manager

Kentucky Division of Forestry
627 Comanche Trail
Frankfort, KY 40601-1798
502-564-4496 Fax: 502-564-6553
Bernie Anderson, Fire Management Chief

INTRODUCTION

The National Weather Service's Fire Weather Program is designed to provide forecasts, warnings, and consultation services for the prevention, suppression, and management of forest and rangeland fires and for a host of land management activities. These meteorological services are built to meet the weather requirements of federal and state wild land managers.

The program is customer-oriented and is not limited to just wild fire management, but also includes all forest and range management weather support (such as prescribed burns and spot forecasts). Weather support is available throughout the year and not just during the normal fire season.

This Operations Plan will cover services provided by the Jackson, KY National Weather Forecast Office. The plan covers how weather services can be requested, how they will be provided, and how compensation will be rendered if need be.

This plan will be reviewed annually by all parties. Any intermediate changes or amendments will be coordinated with all parties involved before the changes are incorporated.

New For 2005

The format of the Spot and Prescribed Burn Forecasts (FWS) has changed slightly due to software implementation. This new software should allow for a quicker turnaround time for Spot Forecast requests. The ignition time temperatures and relative humidities are not included in the standard format, but can be included upon request.

Beginning this fall, the Dispersion Index will be included in both the Spot and Prescribed Burn Forecasts (FWS) and Fire Weather Planning Forecast (FWF).

As a reminder, **graphical** and **digital** displays of weather forecast elements in either hourly or every three hour time intervals are

available on the Jackson National Weather Service Office website at <http://www.crh.noaa.gov/jkl>.

FORECAST AREAS

Five weather forecast offices (WFOs) share responsibility for forecasts and warnings in the state of Kentucky. The map located on page 28 shows the specific areas of responsibility for each office.

FIRE SEASON

The normal fire season will be broken into two separate periods. The spring fire season will run from February 15 through April 30. The fall fire season will begin on October 1 and end on December 15. These dates may be changed depending on the severity of the fire season and the needs of the users per coordination. Normally, the KICC/USDA Forest Service will notify the office of any extensions to the fire weather season(s) that they require.

ISSUANCE TIME OF FIRE WEATHER PLANNING FORECAST

The narrative forecast will normally be issued by 700 AM Eastern Time, seven days a week and updated as warranted outside of the fire season. During the fire seasons, the narrative forecast will be issued twice daily around 700 AM Eastern Time and 400 PM Eastern Time and updated as necessary. The point forecast will be issued by 300 PM Eastern Time during the fire seasons. Examples of narrative and point forecasts are included on pages 35 and 40.

CONTENT OF FIRE WEATHER PLANNING FORECAST

A headline may be added to the top of the forecast, denoting significant weather, or for the issuance of a Red Flag Warning or Fire Weather Watch. The synopsis will briefly cover locations of fronts and systems which produce the weather along with highlighting significant trends or changes that the forecaster anticipates. The near term forecast will cover specific weather elements mentioned below. The extended forecast portion of the narrative forecast will pick up where the short term left off and continue out through day seven. The extended portion is a general

forecast which mentions the possibility of precipitation, expected high and low temperatures for each day, and any winds for days 1 through 5.

Elements of the narrative are described below.

1. SKY COVER

- A. Clear (or Sunny) -- < 1/8th cloud cover.
- B. Mostly Clear/Mostly Sunny -- 1/8th to 2/8ths of cloud cover.
- C. Partly Cloudy/Partly Sunny-- 3/8ths to 5/8ths of cloud cover.
- D. Mostly Cloudy -- 6/8ths to 7/8ths cloud cover.
- E. Cloudy -- 8/8ths cloud cover.
- F. Increasing Cloudiness -- the clouds are increasing in amount (this also implies thickening of clouds).
- G. Decreasing Cloudiness-- A progressive decrease in the amount of sky covered with clouds.
- H. Variable Cloudiness-- A constant variation in the amount of clouds covering the sky with respect to time and space.

2. PRECIPITATION TYPE

- A. Rain--General, not showery, usually in a stable atmosphere. Small to medium sized water droplets.
- B. Drizzle--General precipitation in a stable atmosphere. Very small water droplets that appear to float in the atmosphere.
- C. Freezing Rain/Drizzle-- Liquid precipitation that freezes upon impact with the ground or vegetation.
- D. Sleet--Precipitation that falls in the form of frozen rain or partially frozen rain.
- E. Snow--Frozen precipitation of relatively long duration, general or patchy, not showery.
- F. Snow Flurries--Light snowfall of short duration with some clearing between occurrences. Accumulation, if any, is slight.
- G. Showers--Rain/snowfall of short duration and varying intensity, usually beginning and ending abruptly.
- H. Thundershowers--Same as a shower but accompanied by thunder.
- I. Thunderstorms--Downpour of rain, often with strong gusty winds. Small hail may also be present.

J. Severe Thunderstorm-- Heavy downpours of rain, accompanied by wind gusts to 50 Knots (58 mph) or greater, hailstones of 3/4 inch or larger, and/or a tornado.

3. TEMPERATURE

The temperature will be in degrees Fahrenheit. The maximum and minimum temperatures are forecast for the day and night time periods, respectively. Local variations due to terrain (e.g. ridge/valley temperature splits) will be mentioned in the narrative.

4. RELATIVE HUMIDITY

The Relative Humidity (RH) is the ratio, in percent, of the amount of moisture in the air compared to the amount the air could hold if fully saturated (100%). The range of RH is from 0% to 100%. Usually, the minimum RH occurs at the time of the maximum temperature and the maximum RH occurs at the time of the minimum temperature.

Because of the dependency of the relative humidity upon temperature, it should be noted that if the temperature is under forecast (the actual temperature is higher than forecast), then the forecasted relative humidity will likely will be too high.

5. WIND - DIRECTION AND SPEED

The wind direction applies to the direction from which the wind will blow. The direction will be listed using the 16 point compass (e.g. NE, S, WSW, etc.). Any significant changes expected during the forecast period will be mentioned in the narrative.

The wind speed will be in miles per hour (mph). The speed is the forecast for the 20-foot level. Speeds pertain to the two minute averages while gusts pertain to the maximum instantaneous value expected.

6. Wind Shift

If a shift in wind direction associated with a frontal passage is expected during the period, the new direction and wind speed will be forecast. Wind shifts may also be mentioned in the synopsis. Because a front may take several hours to move

through a zone, the approximate time of the wind shift will be encoded (i.e. Northeast 10 to 15 mph after midnight).

7. Lightning Activity Level

A single digit (1 through 6) will be used. The meaning of each number is as follows:

- 1 No thunderstorms.
- 2 Few building cumulus with isolated thunderstorms. Occasional light rain reaching the ground.
- 3 Widely scattered thunderstorms with much building cumulus. Light to moderate rain reaching the ground.
- 4 Scattered thunderstorms, not obscuring the sky. Moderate rain reaching the ground.
- 5 Numerous thunderstorms, occasionally obscuring the sky. Moderate to heavy rain reaching the ground.
- 6 Same as 3 above, but dry, no rain.

8. Haines Index

The Haines Index that the Jackson National Weather Service Forecast Office will compute for the Fire Weather Planning Forecast is the mid elevation Haines Index. The mid elevation Haines Index is normally used for locations with elevations between 1,000 and 3,000 feet above sea level. Values of the Haines Index range from 2 to 6. The Haines index correlates large plume dominated fire growth.

- 2 Very Low Potential (Moist and Stable Lower Atmosphere)
- 3 Very Low Potential
- 4 Low Potential
- 5 Moderate Potential
- 6 High Potential (Dry Unstable Lower Atmosphere)

8. POPS and Type (CWR \geq 0.01)

The probability of precipitation, or POP, expresses the chance that measurable rainfall will occur at any given point within a county zone group. Measurable rainfall is 0.01 inches or greater. Probability is expressed in percent. A forecast of the predominate type of precipitation will accompany a

probability of precipitation forecast (i.e. 40 percent chance of showers, 60 percent chance of rain, 90 percent chance of light snow).

9. Smoke Management Forecast Parameters

Note: One consequence of the Clean Air Act, is that land managers must practice principles of careful smoke management. This is done by combining favorable meteorological conditions with a variety of prescribed fire techniques so that smoke will be readily dispersed.

A. Afternoon Mixing Height

Mixing height is the extent or depth to which smoke will be dispersed by means of turbulence and diffusion. The forecast of mixing height is expressed in feet above ground level (AGL). The Jackson office will normally express this value as the average over the entire zone. Deviations from this can be computed upon request.

B. Transport Wind

Transport wind is the average wind speed in miles/hour (MPH) in the mixing depth above the surface. These winds are a good indication of the horizontal dispersion of suspended particles. The transport wind is the forecast wind at the time of maximum mixing of the atmosphere, normally during the mid afternoon. Usually a wind of less than 3 mph restricts an agency from burning. Transport wind directions are typically given to eight compass points (e.g. northeast, east southwest, etc.)

Note: Transport winds are not encoded for the nighttime portion of the forecast.

C. Dispersion Index

The Dispersion Index is a number that gives a relative indication of how well smoke will disperse in the atmosphere. It is calculated by taking the Mixing Height divided by 1000 and then multiplying the result by the transport winds in knots. See the table on the following page for how to interpret a given Dispersion Index value.

Dispersion Index	Interpretation
> 100	Very Good
60-100	Good
41-60	Fair to Good
21-40	Fair
13-20	Poor to Fair
7-12	Poor
1-6	Very Poor

10. **QFF**

The average amount of rain that is expected if precipitation occurs.

INDIVIDUAL STATION FORECASTS

The point forecast will be issued by 3:00 PM daily during the fire weather season. The National Fire Danger Rating System (NFDRS) is a quantitative means for evaluating the fire danger across a vast area such as a forest. This complex model of fuel and weather parameters processes daily weather observations and fuel moisture as input, and fire managers receive numeric output that suggest the severity of fire danger over a large area.

Maps showing the locations and descriptions of NFDRS stations are included in the Appendices.

Point Forecast Terminology

1. STATION NAME

Each location will have a name. This name will be provided by the agency requesting the observation site.

2. STATION NUMBER

Before a forecast will be made for a station, it must have a valid station number in WIMS.

3. VALID DATE

The valid date will be the next day in the order: YYMMDD

4. VALID TIME

The valid time will be 1300 (1:00 PM)

5. State of the Weather

A single digit number from 0 to 9.

- 0 Clear (Less than 1/10th of sky is cloud covered).
- 1 Scattered Clouds (1/10th to 5/10ths of sky cloud covered).
- 2 Broken Clouds (6/10ths to 9/10ths of sky cloud covered).
- 3 Overcast (More than 9/10ths of sky cloud covered).
- 4 Foggy
- 5 Drizzle
- 6. Rain
- 7 Snow or Sleet
- 8 Showers (In sight or at station and reaching the ground).
- 9 Thunderstorms/Hail

6. TEMPERATURES

Temperature forecast for 1:00 PM the next day.

7. RELATIVE HUMIDITY

Relative Humidity forecast for 1:00 PM the next day.

8. LIGHTNING ACTIVITY

A. Period 1 (L1) is from 2 PM until midnight that night (a 10 hour period). Period 2 (L2) is from midnight the night of the forecast until midnight the next night (24 hour period.)

B. A single digit (1 through 6) will be used. The meaning of each number is as follows:

- 1 No thunderstorms
- 2 Few building cumulus with isolated thunderstorms
- 3 Much building cumulus with scattered thunderstorms, light to moderate rain reaches the ground.
- 4 Thunderstorms common but do not obscure the sky, moderate rain reaches the ground.
- 5 Thunderstorms common and occasionally obscure the sky, moderate to heavy rain reaches the ground.
- 6 Same as 3 above but dry, no rain

9. WIND DIRECTION AND SPEED

Wind forecast at 1 PM the next day. The wind speed is a 10 minute average at 20 feet above the ground measured to 16 compass points (e.g. WSW, NW, NNE, E, etc).

10. TEN HOUR TIME LAG FUEL MOISTURE

Since the fire weather meteorologist does not typically have access to fuel moisture information, an M will be entered for missing.

11. TEMPERATURE

The 24 hour maximum and minimum temperature forecast from 1:00 PM the day of the forecast until 1:00 PM the next day. This will typically be the maximum temperature of the current day and the overnight low expected in the next 12 to 16 hours.

The temperature in the maximum temperature column must be at least equal to or higher than the temperature given in part(6) above. If not, WIMS will not process a forecast for that station.

12. RELATIVE HUMIDITY

The 24 hour maximum and minimum Relative Humidity forecast from 1:00 PM the day of the forecast until 1:00 PM the next day.

The maximum RH value listed must equal or exceed the value given in part (7.) above. Similarly, the minimum RH value must equal or be less than the value in part (7) above.

Either error will cause WIMS to not process a forecast for that station.

13. PRECIPITATION DURATION

The number of hours for which precipitation is forecast. Period 1 is from 1:00 PM the day of the forecast until 5:00 AM the next day (16 hours). Period 2 runs from 5:00 AM the next day until 1:00 PM that same day (8 hours).

14. WET FLAG

Wet flag is used to indicate "fuels wet". All indices will be forced to zero if Y=yes is used. NOTE: in most cases a N=no will be used unless there is snow on the ground or the ground is extremely wet. If the duration of precipitation is 3 hours or greater between 500 am to 100 pm of the next day, the Wet

Flag should be tripped to a Y value. Also if rain or snow is expected to be occurring at 1300, the Wet Flag should be tripped to a Y value.

SPOT FORECASTS

Requests for Spot or Prescribed Burn forecasts will be made using the internet based NWSSPOT request form. As a courtesy, land management agencies are requested to call the National Weather Service Office in Jackson, KY, to confirm receipt of the spot or prescribed burn forecast request. Once the forecast is completed, it will be available on the NWSSPOT website.

If the NWSSPOT server is down, requests for a spot forecast should be called in or faxed to the forecast office. Faxed requests should be made using WS Form D-1 on page 41. In this case, the forecast will be faxed back to the requesting agency. In this case, the Jackson Weather office send the forecast by fax, may give it verbally over the phone upon request (**i.e., when only a few weather elements are necessary by the user**).

Prescribed Burn forecasts may be requested by federal or state agencies, especially in cases where a prescribed burn is critical or especially large. Federal or state agencies may also request Spot Forecasts for support of wildland fire incidents. These typically contain the forecast parameters of sky condition, weather, temperature, relative humidity, 20 foot wind, significant/sudden changes in wind speed or direction, along with mixing heights, and transport winds shall be provided.

Federal or state agencies requesting prescribed burn or spot forecasts should provide as much information as possible about the location and nature of the site. As much information as possible about the location, elevation, slope, and aspect of the prescribed burn or wildland fire site should be provided to the forecast office. This will aid the forecaster in providing a more specific forecast tailored to the local terrain.

Site forecasts for ongoing wildfires are crucial to fighting fires and for personnel safety. Of paramount importance are forecasts of wind velocity and humidity. For an ongoing wildfire, an attempt should be made to provide a current observation at the time a forecast is requested. The observation will aid the forecaster in preparing a more specific forecast. **Spot or Prescribed Burn Forecasts can be requested at the website listed on page 6.**

DIRECTIONS FOR REQUESTING A SPOT OR PRESCRIBED BURN FORECAST

Fill in as much information as possible (items in red are required):

1. Project Name: (Name of fire or prescribed burn)
2. Select Wildfire or Prescribed Burn, etc. as appropriate
3. Input your agency
4. Requesting Official (Your Name)
5. Phone number
6. Select "Wildfire" or "Non Wildfire" as appropriate
7. Input your Lat and Lon
8. Input Elevation (highest and lowest if available)
9. Input Aspect (valley, ridgetop, North, South etc. as appropriate)
10. Hit "Submit Request" at the bottom of the page.

Once your request is submitted, it will alarm on the computer system at the Jackson National Weather Service office and the National Weather Service will put together a weather forecast specifically for the location of the wildfire or prescribed burn.

Jackson Fire Weather Spot Request - Microsoft Internet Explorer provided by MSN

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media History Mail Print Edit Discuss Messenger

Address <http://spot.nws.noaa.gov/cgi-bin/spot/spotform?site=jk> Go Links »

JACKSON SPOT FORECAST REQUEST

Required Elements in RED

PROJECT NAME

Project Name:

☐ Wildfire ☐ WFU ☐ HAZMAT
☒ Prescribed Fire ☐ SAR

Ignition Time: ☒ Eastern Local Time

Date:

REQUESTING AGENCY

NOTE: Do not use commas in this section.

Requesting Agency:

Requesting Official:

Phone Number: Ext.

FAX Number:

Contact Person:

REASON FOR SPOT FORECAST REQUEST

Must choose either Wildfire or one of the Non-Wildfire reasons

☐ **Wildfire**

☐ **Non-Wildfire**

- ☐ Under the Interagency Agreement for Meteorological Services (USFS, BLM, NPS, USFWS, BIA).
- ☐ State, tribal or local fire agency working in coordination with a federal participant in the Interagency Agreement for Meteorological Services.
- ☐ Essential to public safety, e.g. due to the proximity of population centers or critical infrastructure.

For NWS Spot forecast policy, see section 4.0 in NWS Instruction 10-401 at <http://www.nws.noaa.gov/directives/010/010.htm>

LOCATION

Lat:

Lon:

7.5' Quad:

Elevation: Top Bottom

Drainage:

Aspect:

Size: (Acres)

FUEL

Type:

☐ Sheltering

☐ Full

☐ Partial

☐ Unsheltered

OBSERVATIONS

Place	Elev	Time	Wind	Temp	Wetbulb	RH	Dewpt	Sky/Weather
<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>

Done Internet

METHODS OF COMMUNICATIONS

REGULAR FORECASTS

The narrative forecast and the NFDRS may be found on the INTERNET at the addresses listed earlier in this booklet or check the Daniel Boone Fire Weather home page at:

<http://www.fs.fed.us/r8/boonefire/>

Examples of National Weather Service products can be found on pages 35 to 40.

RED FLAG FORECASTS

Specific conditions must be met for a Fire Weather Watch and/or a Red Flag Warning to be issued. These conditions are as follows:

Ten hour fuel moisture values must be 8% or less. In addition to this fuel moisture criterion, both of the following must occur or have a high probability of occurring:

- 1) Afternoon relative humidity levels are expected to fall to 25% or lower,**
- 2) 20 foot sustained winds are expected to reach or exceed 15 mph.**

Meteorologists should be notified if the moisture in the ten hour fuels is less than or is expected to drop to 8% or less. If the forecast office issues a Fire Weather Watch or Red Flag Warning for a specific forest or national park, the fire weather forecaster will highlight the watch or warning in the narrative forecast by using a headline and will also call the KICC.

A **"Fire Weather Watch"** is used to alert the user to the possible development of a Red Flag event in the near future. This could be up to 72 hours in advance.

A **"Red Flag Warning"** will be issued to warn the user of an impending or ongoing Red Flag event. A Red Flag Warning will be issued immediately when Red Flag Conditions are occurring. Otherwise, it will be issued for impending Red Flag Conditions

when there is a high degree of confidence that conditions will develop.

Because of the restrictions on user programs brought about by a Red Flag Warning, it is imperative that the warning be promptly canceled when the conditions cease to exist or if the conditions are no longer expected to develop.

VERIFICATION OF RED FLAG FORECASTS

Verification of Red Flag Warnings and Fire Weather Watches will be conducted. The methodology is devised in accordance with The National Weather Service Central Region Policy and in coordination with the KICC/USFS.

Methodology of CR Verification for Red Flag Warnings and Fire Weather Watches

The Red Flag Warning/Fire Weather Watch Verification program is divided into four parts:

1. Red Flag Warnings/events for dry thunderstorms.
2. Red Flag Warnings/events for synoptic-scale (i.e. strong winds and low humidity and dry fuels
3. The Total of both 1 and 2.
4. Fire Weather Watch Forecasts/events.

Verification of Red Flag Warnings and Fire Weather Watches will be "tracked" for each fire weather zone (or county). For example, if a Red Flag Warning is issued for an area comprised of five fire weather zones, it will count as five Red Flag Warnings - one for each zone (or county).

A Red Flag Warning issued at the request of a land management agency will NOT be considered for verification purposes. However, such warnings issued will be tallied separately and, for the purpose of workload indication, will be included in the number of total warnings issued by the office.

Data/information from surface observations (ASOS, RAWS, AWOS, etc.), supplementary and complementary weather sources, satellite and radar imagery, etc. may be used to verify (or to not verify) Red Flag Warnings and Fire Weather Watches. Experience, judgement, objectivity, consistency, and ethics will be used in verifying.

The Jackson Weather Forecast Office (WFO) will establish, with coordination of local users its locally-specific criteria and procedures to verify the red flag warnings/events. The local verification methodology will be included in the Annual Fire Weather Operations Plan.

After coordination with users, the Jackson Weather Office will define a "Red Flag Event" where all of the following occur for one hour (one observation) or more:

1. Ten hour fuel moisture of 8% or less.
2. Afternoon relative humidity levels of 25% or less.
3. 20 foot sustained winds are 15 mph or higher.

NOAA ALL HAZARDS RADIO

Kentucky has a statewide network of NOAA All Hazard Radio Transmitters. These 24-hour broadcasts provide continuous up-to-date weather information directly from the National Weather Service. Weather messages are typically repeated every three to six minutes with longer cycles possible during periods of active weather. The broadcast is routinely monitored and revised every few hours. The broadcasts are tailored to the weather needs of the people within the receiving area. These broadcasts can usually be heard as far as 40 miles or more from the antenna site depending on terrain, receiver quality, and other factors.

The quality of the reception of broadcasts may depend greatly upon the quality of the receiver. Receivers vary in cost from around \$20 to more than \$200. Specially designed receivers sound an alarm activated by the National Weather Service to warn of severe weather, or that an emergency exists. Specific Area Message Encoder (SAME) radios are available for around \$80 that will allow the user to program in which county or group of counties he wants to hear the alarm tone for.

Fire Weather Watches are not typically broadcast on NOAA Weather Radio. The Jackson office will broadcast Red Flag Warnings on the NOAA All Hazards Radio, but without the warning alarm tone. Other offices serving the state do not broadcast Fire Weather Watches or Red Flag Warnings on NOAA weather radio.

A listing of NOAA All Hazards Radio transmitter locations are included on page 31.

FIRE WEATHER OBSERVATIONS

The user agencies will enter the observations into WIMS as soon as possible after 1:00 PM Local Standard Time. A forecast is not required if the forecaster does not have the ability to look at an observation. The fire weather forecaster will monitor the observations hourly for data quality and for the development of Red Flag conditions using AWIPS, the internet or the FTS software.

MOBILE UNIT SERVICES OVERVIEW

The AMRS units, composed of the Atmospheric Theodolite Meteorological Unit (ATMU) and Fire RAWS (Fire Remote Automated Weather Station) are the main pieces of equipment used by IMETS on deployment and like IMETs are considered national fire fighting resources.

These units are intended for use by a trained Incident Meteorologist (IMET). All costs incurred by the National Weather Service to have an IMET at a fire (overtime, travel, per diem, tolls, vehicle rental, motels, etc.) will be billed to the requesting agency. This cost generally runs from \$300 to \$400 a day. If Satelittle Communications are used by the IMET a daily charge (\$236.42 for FY 2005) will be billed also. These units can be used anywhere in the United States. The ATMU provides the equipment and supplies for field meteorological operations. The success of these operations depends on the user agency providing a relatively clean and dry working environment as well as a normal and reliable supply of electrical power. In addition, a static-free telephone line is requested.

Most of these units are stored in the western United States. However, two units are stored in London, Kentucky at the US Forest Service's Southern Area (Region 8) CACHE site.

Federal agencies desiring the use of the ATMU should request it through their normal regional dispatch channels. Regional headquarters will then normally relay the request back to NIFC in Boise, ID.

State agencies that have a need for the ATMU will request it through the federal agency in their state. If a state asks for the ATMU, all National Weather Service costs will be charged to the Forest Service, who will then charge the state agency.

The IMET will receive his normal pay based on his fixed schedule at the home office; including Sunday, night, and holiday differentials; from the NWS. The requesting agency will be billed for any overtime incurred and for any hazard differentials experienced by the IMET while dispatched to an incident.

REQUEST AND DISPATCH OF AN INCIDENT METEOROLOGIST (IMET)

National Weather Service Instruction 10-402 (NWSI 10-402) outlines the procedures and policies of Mobile Unit Services. The following provides a summary of section 2 of this Instruction relating to the procedure that land management agencies should follow when requesting an IMET.

Request and dispatch of IMETs and the equipment they use to provide their services (ATMUs and FireRaws) should be accomplished through the National Resource Coordination System.

National Resource Coordination System

The major elements of the **National Resource Coordination System** as related to support of land management consists of:

1. Incidents: Orders for NWS assets are generated at the incident and forwarded to the local dispatch center.
2. Dispatch Centers: Dispatch centers are responsible for providing logistical support to initial attack and project fires at the unit level. A dispatch center requests support from a Geographic Area Coordination Center (GACC) when resources on a unit are unavailable or are exhausted.
3. Expanded Dispatch: During periods of increased fire activity, an expanded dispatch center may be established to provide enhanced support to large or complex incidents.
4. Geographic Area Coordination Centers: GACCs act as focal points for internal and external requests not filled at the local dispatch centers. If the resource is not available within their geographic area, the resource request is forwarded to the National Interagency Coordination Center (NICC) at Boise, ID.
5. National Interagency Coordination Center. NICC is responsible for coordination movement of all resources between GACCs. NICC is located on the campus of the National Interagency Fire Center (NIFC).

Procedure for requests for IMETS from Land Management Agencies

Resource orders for an IMET in support of a wildland fire incident will follow a similar path as the one presented above. The only difference is that the GACC will not try to fill the order if the IMET cannot be found at the dispatch (WFO) level. The GACC will forward the order immediately to the NICC and the Staff Meteorologist to NIFC (SMN). The process is as follows:

1. An incident will request an IMET from the WFO with fire weather service responsibility for the area. The request will be handled by a dispatch or expanded dispatch center. (If an IMET is not assigned to the local WFO, the dispatch center will send the order directly to the GACC and part 3 below is followed).
2. Meteorologists In Charge (MICs) are responsible for responding to all user agency requests for IMETs to support wildland fires within his/her area of responsibility. Hence, the MIC will either promptly dispatch his/her IMET or notify the dispatch center that he/she is unable to fill the order.
3. In the case where the MIC is unable to dispatch an assigned IMET, the dispatch center will forward the request to the GACC. The GACC will notify the SMN who will try to locate an available IMET within the GACC's area of responsibility. If an IMET is located, the GACC will then initiate the order for the IMET. If no IMET can be located, the order will be sent by the GACC to the NICC. The NICC will contact the SMN to find an available IMET outside of the GACC's area.

Note: If the NICC is at National Preparedness Level 5, then all orders will go straight to NICC and the SMN.

Note: Requests for IMET/ATMU support for non-wildland fire events (e.g., insect eradication or seeding projects, etc,) are left to the discretion of the local MIC. The SMN can be contacted if assistance is needed in filling these requests from outside the fire weather service area.

Procedure for requests for IMETS from Non-Land Management Agencies

Since IMETs, ATMUs, and FireRaws are all national resources, requests from non-land management personnel (such as emergency

managers in a HAZMAT incident) should be handled in a manner similar to the procedure described above. In the case of an emergency manager, the dispatch center may be a city, county, or state center. Requests may be received at the closest WFO. Since only a portion of the WFOs have IMETs, the WFO should coordinate with their Regional Headquarters and the Regions should coordinate with the SMN on these type of requests. If the closest WFO cannot fill the request, the MIC will contact the responsible Region and the SMN should be notified of the dispatch as soon as possible.

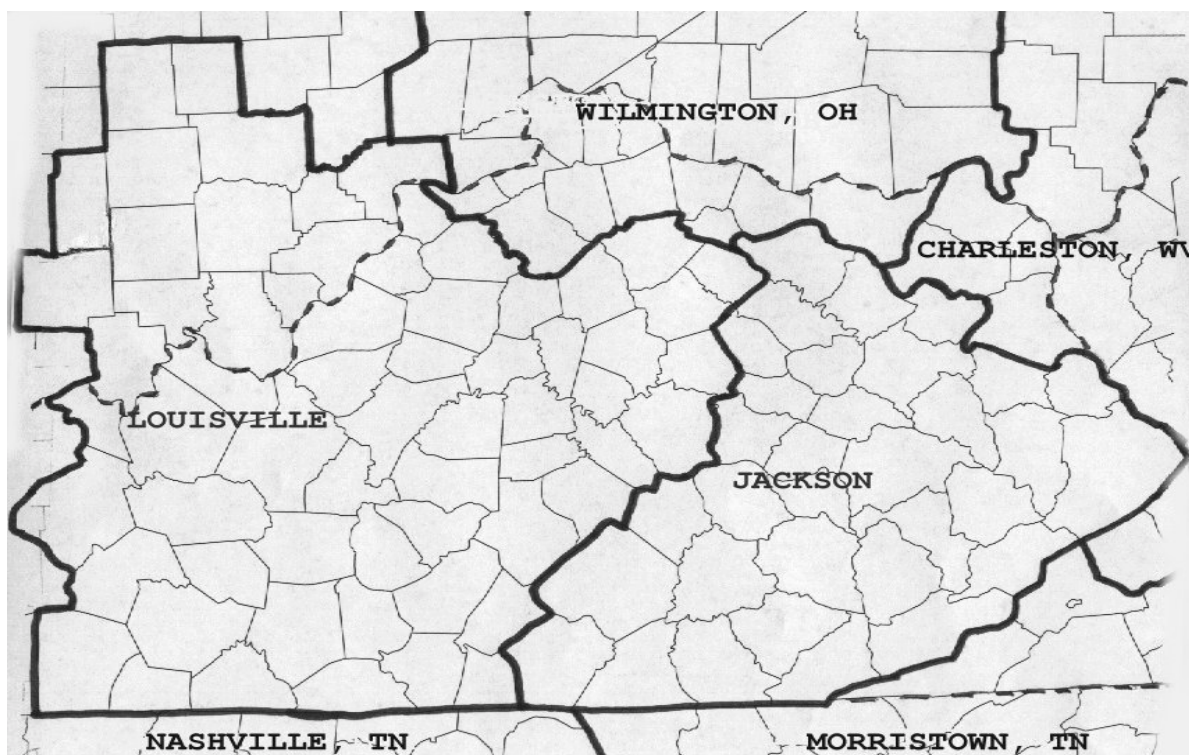
FIRE WEATHER STATION VISITS

The fire weather forecaster may be requested to accompany an official on a fire weather station visitation. A letter requesting the meteorologist should be mailed to WFO about 2-3 weeks in advance of the planned trip. The letter does not need to be specific about dates, this can be arranged over the phone. If the trip involves an overnight stay, the letter should state that the requesting agency will pay travel expenses. A one day trip will not incur any costs to the requesting agency.

Supplies, equipment, and maintenance of the fire weather station are the responsibility of the land management agency.

TRAINING

When the land management agency wishes for a fire weather forecaster to attend a course, the same procedure for requesting a forecaster to a station visitation should be followed, except that specific dates should be given in the letter. The letter will be forwarded to NWS Central Region Headquarters so that a reimbursable task code can be assigned for the trip.



Fire Weather Areas of Responsibility

NFDRS STATIONS



Number	Name	Station ID	County	Elev. (ft)	Lat.	Lon.
1	Dixon Springs	119501	Williamson, IL	540	37:26:09	-88:40:01
2	KYLBL	159901	Trigg	649	36:46:35	-88.03:47
3	Tipsaw Lake	128905	Perry, IN	718	38:07:30	-86:37:30
4	Hardin Ridge	125701	Monroe, IL	750	39:00:00	-86:25:22
5	Mammoth Cave	156502	Edmonson	766	37:07:51	-86:08:52
6	Somerset	157002	Pulaski	927	37:03:18	-84:36:54
7	Koomer Ridge	154401	Wolfe	1300	37:46:08	-83:38:00
8	Triangle Mountain	152001	Rowan	1360	38:10:30	-83:24:30
9	Big Sandy	154801	Martin	1180	37:45:00	-82.37:58
10	Jackson	156001	Breathitt	1388	37:35:31	-83.19:04
11	Cherry Tree	157201	Clay	1709	37:16:48	-83:34:26
12	Yellow Creek	159801	Bell	1090	36:36:55	-83:45:45
13	Alpine	189501	Cumberland	853	36.6000	-83.7
14	Crittenden	150703	Grant	935	38:46:09	-84:36:07
15	Greenville	151191	Muhlenberg	552	37:16:02	-97:12:10
16	Big South	400902	Scott, TN	1445	36:28:30	-84:39:15

NFDRS Weather Station Numbers

Number	Name	Station ID	County	Modem Number	Modem Type	Baud Rate
1	Dixon Springs	119501	Williamson, IL	Not Available	Not Available	Not Available
2	KYLBL	159901	Trigg	DAPS download	Not Available	Not Available
3	Tipsaw Lake	128905	Perry, IN	Not Available	Not Available	Not Available
4	Hardin Ridge	125701	Monroe, IN	Not Available	Not Available	Not Available
5	Mammoth Cave	156502	Edmonson	270-597-2376	TM Ultra	2400
6	Somerset	157002	Pulaski	606-677-9186	TM4000	1200
7	Koomer Ridge	154401	Wolfe	606-668-7234	TM Ultra	9600
8	Triangle Mountain	152001	Rowan	606-784-9365	TM4000	1200
9	Big Sandy	154801	Martin	606-298-6710	TM Ultra	1200
10	Jackson	156001	Breathitt	606-666-9625	TM4000	1200
11	Cherry Tree	157201	Clay	606-847-4095	TM4000	1200
12	Yellow Creek	159801	Bell	DAPS download	Not Available	Not Available
13	Alpine	189501	Cumberland	270-864-9105	TM Ultra	9600
14	Crittenden	150703	Grant	859-428-1565	TM Ultra	9600
15	Greenville	151191	Muhlenberg	502-607-7426	TM Ultra	9600
16	Big South	400902	Scott, TN	DAPS download	Not Available	Not Available

NOAA Weather Radio Information for Kentucky

<u>COUNTY/CITY/ AREA</u>	<u>SAME #</u>	<u>NWR TRANSMITTER</u>	<u>FREQ.</u>	<u>CALL SIGN</u>	<u>WA TTS</u>	<u>REMARKS</u>
Adair	021001	Bowling Green, KY	162.400	KIH45	1000	
Adair	021001	Horse Cave, KY	162.500	WNG570	1000	
Adair	021001	Somerset, KY	162.550	KIH44	1000	
Allen	021003	Bowling Green, KY	162.400	KIH45	1000	
Anderson	021005	Lexington, KY	162.400	KIH41	1000	
Ballard	021007	Mayfield, KY	162.475	KIH46	1000	
Barren	021009	Bowling Green, KY	162.400	KIH45	1000	
Barren	021009	Horse Cave, KY	162.500	WNG570	1000	
Bath	021011	Lexington, KY	162.400	KIH41	1000	
Bath	021011	Morehead, KY	162.425	WWG71	500	
Bell	021013	Hazard, KY	162.475	KIH40	1000	
Bell	021013	Pineville, KY	162.525	WWG62	300	
Bell	021013	Stanton, KY	162.550	WWG61	300	
Boone	021015	Covington, KY	162.550	KIH42	1000	
Boone	021015	Owenton, KY	162.450	KZZ48	300	
Bourbon	021017	Lexington, KY	162.400	KIH41	1000	
Boyd	021019	Ashland, KY	162.550	KIH39	1000	
Boyle	021021	Horse Cave, KY	162.500	WNG570	1000	
Boyle	021021	Lexington, KY	162.400	KIH41	1000	
Bracken	021023	Covington, KY	162.550	KIH42	1000	
Bracken	021023	Maysville, KY	162.425	KZZ49	300	
Breathitt	021025	Hazard, KY	162.475	KIH40	1000	
Breathitt	021025	Jackson, KY	162.425	WWG26	300	
Breckinridge	021027	New Albany, IN	162.475	KIH43	1000	
Bullitt	021029	New Albany, IN	162.475	KIH43	1000	
Butler	021031	Bowling Green, KY	162.400	KIH45	1000	
Caldwell	021033	St. Charles, KY	162.525	WXJ91	1000	
Calloway	021035	Mayfield, KY	162.475	KIH46	1000	
Campbell	021037	Covington, KY	162.550	KIH42	1000	
Carlisle	021039	Mayfield, KY	162.475	KIH46	1000	
Carroll	021041	Owenton, KY	162.450	KZZ48	300	
Carter	021043	Ashland, KY	162.550	KIH39	1000	Central/E
Casey	021045	Horse Cave, KY	162.500	WNG570	1000	
Casey	021045	Somerset, KY	162.550	KIH44	1000	
Christian	021047	Bowling Green, KY	162.400	KIH45	1000	
Christian	021047	Clarksville, TN	162.500	WWH37	300	
Christian	021047	Hopkinsville, KY	162.450	KXI26	300	
Christian	021047	St. Charles, KY	162.525	WXJ91	1000	
Clark	021049	Lexington, KY	162.400	KIH41	1000	
Clay	021051	Hazard, KY	162.475	KIH40	1000	
Clay	021051	Manchester, KY	162.400	WWG66	300	
Clinton	021053	Bowling Green, KY	162.400	KIH45	1000	
Clinton	021053	Somerset, KY	162.550	KIH44	1000	
Crittenden	021055	Mayfield, KY	162.475	KIH46	1000	
Crittenden	021055	St. Charles, KY	162.525	WXJ91	1000	
Cumberland	021057	Bowling Green, KY	162.400	KIH45	1000	
Cumberland	021057	Burkesville, KY	162.475	KZZ62	300	

Cumberland	021057	Somerset, KY	162.550	KIH44	1000	
Daviess	021059	Whitesville, KY	162.475	KZZ61	300	
Edmonson	021061	Bowling Green, KY	162.400	KIH45	1000	
Edmonson	021061	Horse Cave, KY	162.500	WNG570	1000	
Elliott	021063	Ashland, KY	162.550	KIH39	1000	Central/E
Elliott	021063	Morehead, KY	162.425	WWG71	500	
Elliott	021063	West Liberty, KY	162.450	WWG79	300	
Estill	021065	Irvine, KY	162.475	WNG727	300	
Estill	021065	Lexington, KY	162.400	KIH41	1000	
Fayette	021067	Lexington, KY	162.400	KIH41	1000	
Fleming	021069	Lexington, KY	162.400	KIH41	1000	
Fleming	021069	Morehead, KY	162.425	WWG71	500	
Floyd	021071	Hazard, KY	162.475	KIH40	1000	
Floyd	021071	Paintsville, KY	162.525	WWG28	100	
Floyd	021071	Pikeville, KY	162.400	WWG69	500	
Franklin	021073	Lexington, KY	162.400	KIH41	1000	
Franklin	021073	Owenton, KY	162.450	KZZ48	300	
Fulton	021075	Mayfield, KY	162.475	KIH46	1000	
Gallatin	021077	Covington, KY	162.550	KIH42	1000	
Gallatin	021077	Owenton, KY	162.450	KZZ48	300	
Garrard	021079	Lexington, KY	162.400	KIH41	1000	
Grant	021081	Covington, KY	162.550	KIH42	1000	
Grant	021081	Owenton, KY	162.450	KZZ48	300	
Graves	021083	Mayfield, KY	162.475	KIH46	1000	
Grayson	021085	Bowling Green, KY	162.400	KIH45	1000	
Grayson	021085	Horse Cave, KY	162.500	WNG570	1000	
Green	021087	Bowling Green, KY	162.400	KIH45	1000	
Green	021087	Horse Cave, KY	162.500	WNG570	1000	
Green	021087	Somerset, KY	162.550	KIH44	1000	
Greenup	021089	Ashland, KY	162.550	KIH39	1000	
Hancock	021091	Whitesville, KY	162.475	KZZ61	300	
Hardin	021093	Elizabethtown, KY	162.550	KIH43A	300	
Hardin	021093	New Albany, IN	162.475	KIH43	1000	
Harlan	021095	Harlan, KY	162.450	WWG68	300	
Harlan	021095	Hazard, KY	162.475	KIH40	1000	
Harrison	021097	Lexington, KY	162.400	KIH41	1000	
Harrison	021097	Owenton, KY	162.450	KZZ48	300	
Hart	021099	Bowling Green, KY	162.400	KIH45	1000	
Hart	021099	Horse Cave, KY	162.500	WNG570	1000	
Hart	021099	Somerset, KY	162.550	KIH44	1000	
Henry	021103	New Albany, IN	162.475	KIH43	1000	
Henry	021103	Owenton, KY	162.450	KZZ48	300	
Hickman	021105	Mayfield, KY	162.475	KIH46	1000	
Hopkins	021107	St. Charles, KY	162.525	WXJ91	1000	
Jackson	021109	Hazard, KY	162.475	KIH40	1000	
Jackson	021109	McKee, KY	162.450	WWG64	300	
Jefferson	021111	New Albany, IN	162.475	KIH43	1000	
Jessamine	021113	Lexington, KY	162.400	KIH41	1000	
Johnson	021115	Ashland, KY	162.550	KIH39	1000	N
Johnson	021115	Paintsville, KY	162.525	WWG28	100	
Johnson	021115	Pikeville, KY	162.400	WWG69	500	
Kenton	021117	Covington, KY	162.550	KIH42	1000	
Knott	021119	Hazard, KY	162.475	KIH40	1000	

Knox	021121	Hazard, KY	162.475	KIH40	1000	
Knox	021121	Somerset, KY	162.550	KIH44	1000	
Larue	021123	Bowling Green, KY	162.400	KIH45	1000	
Larue	021123	Horse Cave, KY	162.500	WNG570	1000	
Larue	021123	New Albany, IN	162.475	KIH43	1000	
Laurel	021125	London, KY	162.475	WWG65	300	
Laurel	021125	Somerset, KY	162.550	KIH44	1000	
Lawrence	021127	Ashland, KY	162.550	KIH39	1000	
Lee	021129	Beattyville, KY	162.500	WWG67	300	
Lee	021129	Hazard, KY	162.475	KIH40	1000	
Leslie	021131	Hazard, KY	162.475	KIH40	1000	
Letcher	021133	Hazard, KY	162.475	KIH40	1000	
Lewis	021135	Ashland, KY	162.550	KIH39	1000	NE
Lewis	021135	Maysville, KY	162.425	KZZ49	300	
Lewis	021135	Otway, OH	162.525	WXM69	1000	
Lincoln	021137	Somerset, KY	162.550	KIH44	1000	
Livingston	021139	Mayfield, KY	162.475	KIH46	1000	
Logan	021141	Bowling Green, KY	162.400	KIH45	1000	
Lyon	021143	Mayfield, KY	162.475	KIH46	1000	
Lyon	021143	St. Charles, KY	162.525	WXJ91	1000	
McCracken	021145	Mayfield, KY	162.475	KIH46	1000	
McCreary	021147	Somerset, KY	162.550	KIH44	1000	
McLean	021149	St. Charles, KY	162.525	WXJ91	1000	
Madison	021151	East Madison County, KY	162.525	WWF82A	100	
Madison	021151	Lexington, KY	162.400	KIH41	1000	
Madison	021151	Madison County (CSEPP), KY	162.525	WWF82C	100	
Madison	021151	West Madison County, KY	162.525	WWF82B	100	
Magoffin	021153	Hazard, KY	162.475	KIH40	1000	
Magoffin	021153	Paintsville, KY	162.525	WWG28	100	
Magoffin	021153	Pikeville, KY	162.400	WWG69	500	
Marion	021155	Somerset, KY	162.550	KIH44	1000	
Marshall	021157	Mayfield, KY	162.475	KIH46	1000	
Martin	021159	Ashland, KY	162.550	KIH39	1000	N
Martin	021159	Paintsville, KY	162.525	WWG28	100	
Martin	021159	Pikeville, KY	162.400	WWG69	500	
Mason	021161	Maysville, KY	162.425	KZZ49	300	
Mason	021161	Otway, OH	162.525	WXM69	1000	
Meade	021163	Ekron, KY	162.450	KZZ64	300	
Meade	021163	New Albany, IN	162.475	KIH43	1000	
Menifee	021165	Frenchburg, KY	162.475	WWG63	300	
Menifee	021165	Lexington, KY	162.400	KIH41	1000	
Mercer	021167	Lexington, KY	162.400	KIH41	1000	
Metcalfe	021169	Bowling Green, KY	162.400	KIH45	1000	
Metcalfe	021169	Horse Cave, KY	162.500	WNG570	1000	
Metcalfe	021169	Somerset, KY	162.550	KIH44	1000	
Monroe	021171	Bowling Green, KY	162.400	KIH45	1000	
Monroe	021171	Somerset, KY	162.550	KIH44	1000	
Montgomery	021173	Lexington, KY	162.400	KIH41	1000	
Morgan	021175	Hazard, KY	162.475	KIH40	1000	
Morgan	021175	West Liberty, KY	162.450	WWG79	300	
Muhlenberg	021177	Bowling Green, KY	162.400	KIH45	1000	
Muhlenberg	021177	St. Charles, KY	162.525	WXJ91	1000	

Nelson	021179	New Albany, IN	162.475	KIH43	1000	
Nicholas	021181	Lexington, KY	162.400	KIH41	1000	
Ohio	021183	Bowling Green, KY	162.400	KIH45	1000	
Oldham	021185	New Albany, IN	162.475	KIH43	1000	
Owen	021187	Covington, KY	162.550	KIH42	1000	
Owen	021187	Owenton, KY	162.450	KZZ48	300	
Owsley	021189	Hazard, KY	162.475	KIH40	1000	
Pendleton	021191	Covington, KY	162.550	KIH42	1000	
Pendleton	021191	Owenton, KY	162.450	KZZ48	300	
Perry	021193	Hazard, KY	162.475	KIH40	1000	
Pike	021195	Hazard, KY	162.475	KIH40	1000	
Pike	021195	Paintsville, KY	162.525	WWG28	100	
Pike	021195	Phelps, KY	162.500	WWG81	300	
Pike	021195	Pikeville, KY	162.400	WWG69	500	
Powell	021197	Lexington, KY	162.400	KIH41	1000	
Powell	021197	Stanton, KY	162.550	WWG61	300	
Pulaski	021199	Somerset, KY	162.550	KIH44	1000	
Robertson	021201	Lexington, KY	162.400	KIH41	1000	
Robertson	021201	Maysville, KY	162.425	KZZ49	300	
Rockcastle	021203	Mount Vernon, KY	162.425	WWG70	300	
Rockcastle	021203	Somerset, KY	162.550	KIH44	1000	
Rowan	021205	Lexington, KY	162.400	KIH41	1000	
Rowan	021205	Morehead, KY	162.425	WWG71	500	
Russell	021207	Bowling Green, KY	162.400	KIH45	1000	
Russell	021207	Somerset, KY	162.550	KIH44	1000	
Scott	021209	Lexington, KY	162.400	KIH41	1000	
Scott	021209	Owenton, KY	162.450	KZZ48	300	
Shelby	021211	New Albany, IN	162.475	KIH43	1000	
Shelby	021211	Owenton, KY	162.450	KZZ48	300	
Simpson	021213	Bowling Green, KY	162.400	KIH45	1000	
Spencer	021215	New Albany, IN	162.475	KIH43	1000	
Taylor	021217	Campbellsville, KY	162.525	KZZ63	300	
Taylor	021217	Somerset, KY	162.550	KIH44	1000	
Todd	021219	Bowling Green, KY	162.400	KIH45	1000	
Todd	021219	Clarksville, TN	162.500	WWH37	300	
Todd	021219	Hopkinsville, KY	162.450	KXI26	300	
Todd	021219	St. Charles, KY	162.525	WXJ91	1000	
Trigg	021221	Hopkinsville, KY	162.450	KXI26	300	
Trigg	021221	Mayfield, KY	162.475	KIH46	1000	
Trigg	021221	St. Charles, KY	162.525	WXJ91	1000	
Trimble	021223	New Albany, IN	162.475	KIH43	1000	
Union	021225	St. Charles, KY	162.525	WXJ91	1000	
Warren	021227	Bowling Green, KY	162.400	KIH45	1000	
Washington	021229	New Albany, IN	162.475	KIH43	1000	
Washington	021229	Somerset, KY	162.550	KIH44	1000	
Wayne	021231	Monticello, KY	162.425	WWG80	300	
Wayne	021231	Somerset, KY	162.550	KIH44	1000	
Webster	021233	St. Charles, KY	162.525	WXJ91	1000	
Whitley	021235	Somerset, KY	162.550	KIH44	1000	
Whitley	021235	Williamsburg, KY	162.500	WWG78	300	
Wolfe	021237	Hazard, KY	162.475	KIH40	1000	
Woodford	021239	Lexington, KY	162.400	KIH41	1000	

FNUS53 KJKL 271031
FWFJKL

FIRE WEATHER PLANNING FORECAST FOR EASTERN KENTUCKY
NATIONAL WEATHER SERVICE JACKSON KY
631 AM EDT SAT AUG 27 2005

.DISCUSSION...AN APPROACHING COLD FRONT WILL BRING ANOTHER ROUND OF
SHOWERS AND THUNDERSTORMS TO THE AREA TODAY...WITH DRY WEATHER FOLLOWING
FOR TOMORROW. ALL EYES WILL THEN BE ON HURRICANE KATRINA AS IT THREATENS
THE GULF COAST STATES AND EVENTUALLY TRACKS NORTH INTO THE
MISSISSIPPI VALLEY. THE TROPICAL SYSTEM WILL BRING A CHANCE OF RAIN
TO EASTERN KENTUCKY BY MONDAY...HOWEVER THE PATH AT THIS TIME IS
STILL VERY UNCERTAIN...AND ANY DEVIATION COULD GREATLY AFFECT THE
TIMING...CHANCE...AND AMOUNT OF RAINFALL.

KYZ044-050>052-058>060-068-069-079-080-083>086-104-106>109-111-112-
114-116-272245-
FLEMING-MONTGOMERY-BATH-ROWAN-ESTILL-POWELL-MENIFEE-ROCKCASTLE-
JACKSON-PULASKI-LAUREL-WAYNE-MCCREARY-WHITLEY-KNOX-ELLIOTT-MORGAN-
JOHNSON-WOLFE-MAGOFFIN-LEE-BREATHITT-OWSLEY-CLAY-
INCLUDING THE CITIES OF...FLEMINGSBURG...MOUNT STERLING...
OWINGSVILLE...MOREHEAD...IRVINE...STANTON...FRENCHBURG...
MOUNT VERNON...MCKEE...SOMERSET...LONDON...MONTICELLO...
WHITLEY CITY...CORBIN...WILLIAMSBURG...BARBOURVILLE...SANDY HOOK...
WEST LIBERTY...PAINTSVILLE...CAMPTON...SALYERSVILLE...BEATTYVILLE...
JACKSON...BOONEVILLE...MANCHESTER
631 AM EDT SAT AUG 27 2005

.TODAY...
SKY/WEATHER.....MOSTLY CLOUDY. SHOWERS AND THUNDERSTORMS LIKELY.

MAX TEMPERATURE.....AROUND 83.
 24 HR TREND.....UNCHANGED.
 MIN HUMIDITY.....64-74 PERCENT.
 24 HR TREND.....5 PERCENT WETTER.
 WIND (20 FT).....LIGHT WINDS BECOMING SOUTHWEST LESS THAN 5 MPH
 IN THE AFTERNOON.
 LAL.....5.
 HAINES INDEX.....2 OR VERY LOW POTENTIAL FOR LARGE PLUME
 DOMINATED FIRE GROWTH.
 MIXING HEIGHT.....3300 FT AGL.
 TRANSPORT WIND.....SOUTHWEST 10 TO 20 MPH.
 PROB OF PRECIP.....70 PERCENT.
 QPF (INCHES).....0.21 INCHES.

 .TONIGHT...
 SKY/WEATHER.....MOSTLY CLOUDY THEN BECOMING PARTLY CLOUDY. PATCHY
 FOG AFTER MIDNIGHT. A CHANCE OF SHOWERS AND
 THUNDERSTORMS IN THE EVENING.
 MIN TEMPERATURE.....64-69.
 24 HR TREND.....1 DEGREE COOLER.
 MAX HUMIDITY.....89-99 PERCENT.
 24 HR TREND.....2 PERCENT DRIER.
 WIND (20 FT).....SOUTHWEST WINDS LESS THAN 5 MPH.
 LAL.....3.
 HAINES INDEX.....2 OR VERY LOW POTENTIAL FOR LARGE PLUME
 DOMINATED FIRE GROWTH.
 PROB OF PRECIP.....30 PERCENT.
 QPF (INCHES).....0.06 INCHES.

 .SUNDAY...
 SKY/WEATHER.....PARTLY CLOUDY. PATCHY FOG IN THE MORNING.
 MAX TEMPERATURE.....AROUND 90.
 24 HR TREND.....7 DEGREES WARMER.
 MIN HUMIDITY.....48-58 PERCENT.
 24 HR TREND.....20 PERCENT DRIER.
 WIND (20 FT).....LIGHT WINDS.
 LAL.....1.
 HAINES INDEX.....2 OR VERY LOW POTENTIAL FOR LARGE PLUME
 DOMINATED FIRE GROWTH.
 MIXING HEIGHT.....4700 FT AGL.
 TRANSPORT WIND.....NORTHEAST AROUND 5 MPH.
 PROB OF PRECIP.....10 PERCENT.
 QPF (INCHES).....NONE.

\$\$

KYZ087-088-110-113-115-117>120-272245-
 BELL-HARLAN-FLOYD-KNOTT-PERRY-LESLIE-LETCHER-MARTIN-PIKE-
 INCLUDING THE CITIES OF...MIDDLESBORO...PINEVILLE...HARLAN...
 PRESTONSBURG...HINDMAN...HAZARD...HYDEN...WHITESBURG...INEZ...
 PIKEVILLE
 631 AM EDT SAT AUG 27 2005

.TODAY...
 SKY/WEATHER.....MOSTLY CLOUDY. PATCHY FOG IN THE MORNING. A
 CHANCE OF SHOWERS AND THUNDERSTORMS IN THE MORNING...
 THEN SHOWERS AND THUNDERSTORMS LIKELY IN THE AFTERNOON.
 MAX TEMPERATURE.....AROUND 81.
 24 HR TREND.....UNCHANGED.
 MIN HUMIDITY.....63-73 PERCENT.
 24 HR TREND.....7 PERCENT WETTER.

WIND (20 FT).....SOUTHWEST WINDS LESS THAN 5 MPH.
 LAL.....5.
 HAINES INDEX.....2 OR VERY LOW POTENTIAL FOR LARGE PLUME
 DOMINATED FIRE GROWTH.
 MIXING HEIGHT.....3100 FT AGL.
 TRANSPORT WIND.....SOUTHWEST 10 TO 20 MPH.
 PROB OF PRECIP.....70 PERCENT.
 QPF (INCHES).....0.21 INCHES.

.TONIGHT...
 SKY/WEATHER.....MOSTLY CLOUDY. PATCHY FOG AFTER MIDNIGHT. A
 CHANCE OF SHOWERS AND THUNDERSTORMS IN THE EVENING...
 THEN A SLIGHT CHANCE OF THUNDERSTORMS AFTER MIDNIGHT.
 MIN TEMPERATURE.....64-69.
 24 HR TREND.....1 DEGREE WARMER.
 MAX HUMIDITY.....85-95 PERCENT.
 24 HR TREND.....8 PERCENT DRIER.
 WIND (20 FT).....SOUTHWEST WINDS LESS THAN 5 MPH.
 LAL.....3.
 HAINES INDEX.....3 OR VERY LOW POTENTIAL FOR LARGE PLUME
 DOMINATED FIRE GROWTH.
 PROB OF PRECIP.....40 PERCENT.
 QPF (INCHES).....0.07 INCHES.

.SUNDAY...
 SKY/WEATHER.....PARTLY CLOUDY. PATCHY FOG IN THE MORNING.
 MAX TEMPERATURE.....AROUND 87.
 24 HR TREND.....5 DEGREES WARMER.
 MIN HUMIDITY.....49-59 PERCENT.
 24 HR TREND.....14 PERCENT DRIER.
 WIND (20 FT).....LIGHT WINDS BECOMING NORTHEAST LESS THAN 5 MPH
 IN THE AFTERNOON.
 LAL.....2.
 HAINES INDEX.....2 OR VERY LOW POTENTIAL FOR LARGE PLUME
 DOMINATED FIRE GROWTH.
 MIXING HEIGHT.....4500 FT AGL.
 TRANSPORT WIND.....NORTHWEST LESS THAN 5 MPH.
 PROB OF PRECIP.....10 PERCENT.
 QPF (INCHES).....NONE.

\$\$

.FORECAST DAYS 3 THROUGH 7...
 .MONDAY...PARTLY CLOUDY WITH A CHANCE OF SHOWERS AND THUNDERSTORMS.
 LOWS IN THE UPPER 60S. HIGHS IN THE UPPER 80S. LIGHT WINDS.
 .TUESDAY...MOSTLY CLOUDY WITH A CHANCE OF SHOWERS AND THUNDERSTORMS.
 LOWS IN THE MID 60S. HIGHS AROUND 80. NORTHEAST WINDS LESS THAN 5 MPH.
 .WEDNESDAY...PARTLY CLOUDY WITH A SLIGHT CHANCE OF SHOWERS AND THUNDERSTORMS.
 LOWS IN THE LOWER 60S. HIGHS AROUND 80. WEST WINDS LESS THAN 5 MPH.
 .THURSDAY...PARTLY CLOUDY. LOWS IN THE LOWER 60S. HIGHS AROUND 80.
 .FRIDAY...PARTLY CLOUDY. LOWS AROUND 60. HIGHS IN THE LOWER 80S.

\$\$

FNUS83 KJKL 131900
FWMJKL

FCST,154401,010214,13,6,58,78,1,1,SW,10,M,58,48,93,83,5,6,N
FCST,157002,010214,13,6,61,67,1,1,SW,12,M,61,47,99,72,8,5,N
FCST,157201,010214,13,6,58,78,1,1,SW,13,M,58,49,93,88,6,6,N
FCST,159801,010214,13,6,59,75,1,1,SW,09,M,59,47,99,72,7,5,N
FCST,152001,010214,13,6,57,80,1,1,SW,12,M,57,48,93,67,5,6,N
FCST,154801,010214,13,6,58,78,1,1,SW,10,M,58,47,99,71,5,6,N
FCST,156001,010214,13,6,58,78,1,1,SW,10,M,58,48,97,77,6,6,N

WWUS83 KJKL 061018
RFWJKL

RED FLAG WARNING
NATIONAL WEATHER SERVICE JACKSON KY
529 AM EDT WED APR 6 2005

KYZ052-060-080-085>088-104-106>120-070000-
BELL KY-BREATHITT KY-CLAY KY-ELLIOTT KY-FLOYD KY-HARLAN KY-
JOHNSON KY-KNOTT KY-KNOX KY-LAUREL KY-LEE KY-LESLIE KY-LETCHER KY-
MAGOFFIN KY-MARTIN KY-MENIFEE KY-MORGAN KY-OWSLEY KY-PERRY KY-
PIKE KY-ROWAN KY-WHITLEY KY-WOLFE KY-
INCLUDING THE CITIES OF...MIDDLESBORO...WILLIAMSBURG...WHITESBURG...
WEST LIBERTY...SANDY HOOK...SALYERSVILLE...PRESTONSBURG...
PINEVILLE...PIKEVILLE...PAINTSVILLE...MOREHEAD...MANCHESTER...
LONDON...JACKSON...INEZ...HYDEN...HINDMAN...HAZARD...HARLAN...
FRENCHBURG...CAMPTON...BOONEVILLE...BEATTYVILLE AND BARBOURVILLE
529 AM EDT WED APR 6 2005

...RED FLAG WARNING FOR STRONG WINDS AND LOW RELATIVE HUMIDITIES FROM
NOON THROUGH 8 PM EDT TONIGHT...

DISCUSSION...THE NATIONAL WEATHER SERVICE IN JACKSON KY HAS ISSUED A
RED FLAG WARNING. AN APPROACHING STRONG LOW PRESSURE SYSTEM AND
ASSOCIATED COLD FRONT WILL BRING INCREASING SOUTHERLY WINDS TODAY.
EXPECT SOUTH WINDS TO INCREASE TO ABOVE 15 MPH WITH HIGHER GUSTS UP
TO 30 MPH. AT THE SAME TIME...DRIER AIR WILL MIX DOWN FROM
ALOFT...COMBINING WITH TEMPERATURES NEAR 80 DEGREES...TO PRODUCE

RELATIVE HUMIDITIES AT OR BELOW 25 PERCENT BY EARLY THIS
AFTERNOON...ESPECIALLY ON SOUTH FACING SLOPES AND RIDGETOPS.

PLEASE ADVISE THE APPROPRIATE OFFICIALS OR FIRE CREWS IN THE FIELD OF
THIS RED FLAG WARNING.

\$\$

FNUS73 KJKL 251543
FWSJKL

SPOT FORECAST FOR SAND LICK...USFS
NATIONAL WEATHER SERVICE JACKSON KY
1127 AM EDT SAT JUN 25 2005

IF CONDITIONS BECOME UNREPRESENTATIVE, CONTACT THE NATIONAL WEATHER
SERVICE.

.DISCUSSION...HIGH PRESSURE ALONG THE MID ATLANTIC COAST WILL
CONTINUE TO BRING VERY WARM AND DRY WEATHER TO EASTERN KENTUCKY FOR
THE REMAINDER OF THE WEEKEND. THE NEXT CHANCE FOR ISOLATED TO
SCATTERED SHOWERS AND THUNDERSTORMS WILL BE EARLY IN THE NEXT WORK
WEEK AS MOISTURE INCREASES.

.TODAY...
SKY/WEATHER.....BECOMING PARTLY CLOUDY.
MAX TEMPERATURE.....90-93.
MIN HUMIDITY.....32-37 PERCENT.
WIND (20 FT).....SOUTH 2-4 MPH BECOMING NORTHEAST 2-4 MPH AROUND
4 PM.
SLOPE/VALLEY.....UPSLOPE 3-5 MPH.
POP.....0 PERCENT.
MIXING HEIGHT.....5200 FT AGL.
TRANSPORT WINDS.....SOUTHEAST LESS THAN 5 MPH SHIFTING TO THE NORTHEAST
AROUND 4 PM.

.TONIGHT...
 SKY/WEATHER.....MOSTLY CLEAR.
 MIN TEMPERATURE.....64-68.
 MAX HUMIDITY.....85-95 PERCENT.
 WIND (20 FT).....NORTHEAST 2-4 MPH BECOMING EAST 2-4 MPH.
 SLOPE/VALLEY.....DOWNSLOPE 2 MPH.
 POP.....0 PERCENT.

.SUNDAY...
 SKY/WEATHER.....BECOMING PARTLY CLOUDY.
 MAX TEMPERATURE.....91-93.
 MIN HUMIDITY.....33-38 PERCENT.
 WIND (20 FT).....EAST 3-8 MPH.
 SLOPE/VALLEY.....UPSLOPE 4-9 MPH.
 POP.....10 PERCENT.
 MIXING HEIGHT.....5000 FT AGL.
 TRANSPORT WINDS.....EAST 5 TO 10 MPH.

\$\$
 FORECASTER...AA
 REQUESTED BY...FIRE MANAGEMENT
 REASON FOR REQUEST...WILDFIRE
 .TAG 20050625.SANDL.01/JKL

WS FORM D-1 (5-2004) (Supersedes Previous Editions)		SPOT REQUEST (See reverse for instructions)		U.S. Department of Commerce NOAA National Weather Service	
I. REQUESTING AGENCY WILL FURNISH:					
1. Time†	2. Date	3. Name of Incident or Project		4. Requesting Agency	
5. Requesting Official		6. Phone Number	7. Fax Number		8. Contact Person
9. Ignition/Incident Time and Date	12. Reason for Spot Request (choose one only) ○ Wildfire ○ Non-Wildfire Under the Interagency Agreement for Meteorological Services (USFS, BLM, NPS, USFWS, BIA) ○ Non-Wildfire State, tribal or local fire agency working in coordination with a federal participant in the Interagency Agreement for Meteorological Services ○ Non-Wildfire Essential to public safety, e.g. due to the proximity of population centers or critical infrastructure.			13. Lat/Lon or Legal (T/R):	
10. Size (Acres)				14. Elevation (ft, Mean Sea Level) Top: Bottom:	
11. Type of Fire ○ Wildfire ○ Prescribed Fire ○ WFU ○ HAZMAT ○ Search And Rescue				15. Drainage	
				16. Aspect	17. Sheltering ○ Full ○ Partial ○ Unsheltered
18. Fuel Type: __Grass __Brush __Timber __Slash __Grass/Timber Understory __Other_____ Fuel Model: 1,2,3 4,5,6,7 8,9,10 11,12,13 2,5,8					
19. Location and name of nearest RAWs station (distance & direction from project):					
20. Weather Observations from project or nearby station(s): (Winds should be in compass direction e.g. N, NW, etc.)					

Place	Elevation	†Ob Time	20 ft. Wind		Eye Level Wind.		Temp.		Moisture		Remarks <i>(Indicate rain, T'storms, etc. Also wind condition and 10ths of cloud cover)</i>																																								
			Dir	Speed	Dir	Speed	Dry	Wet	RH	DP																																									
21. Requested Forecast Period †Time _____ Date _____ Start _____ End _____		22. Primary Forecast Elements (Check all that are needed) (for management ignited wildland fires, provide prescription parameters): <table border="0"> <thead> <tr> <th></th> <th>Today</th> <th>Tonight</th> <th>Tomorrow</th> </tr> </thead> <tbody> <tr> <td>Sky/Weather</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Temperature</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Humidity</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Eye Level Wind</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>20 ft Wind</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Haines Index</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Smoke Dispersion</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Wave/Swell Height</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Wave/Swell Direction</td> <td>—</td> <td>—</td> <td>—</td> </tr> </tbody> </table>											Today	Tonight	Tomorrow	Sky/Weather	—	—	—	Temperature	—	—	—	Humidity	—	—	—	Eye Level Wind	—	—	—	20 ft Wind	—	—	—	Haines Index	—	—	—	Smoke Dispersion	—	—	—	Wave/Swell Height	—	—	—	Wave/Swell Direction	—	—	—
	Today	Tonight	Tomorrow																																																
Sky/Weather	—	—	—																																																
Temperature	—	—	—																																																
Humidity	—	—	—																																																
Eye Level Wind	—	—	—																																																
20 ft Wind	—	—	—																																																
Haines Index	—	—	—																																																
Smoke Dispersion	—	—	—																																																
Wave/Swell Height	—	—	—																																																
Wave/Swell Direction	—	—	—																																																
23. Send Forecast to: ATTN: _____		24. Location: _____					25. Phone Number: _____ Fax Number: _____																																												
Remarks (Special requests, incident details, Smoke Dispersion elements needed, etc.): <div style="height: 40px;"></div>																																																			
II. FIRE WEATHER FORECASTER WILL FURNISH:																																																			
26. FORECAST AND OUTLOOK (see attached)																																																			
Name of Forecaster: _____			NWS Office: _____					Time and Date: _____																																											
III. REQUESTING AGENCY WILL COMPLETE UPON RECEIPT OF FORECAST:																																																			
27. FEEDBACK to NWS: Please provide feedback to NWS staff on forecast accuracy etc. (see instructions)																																																			
IV. FORECAST RECEIVED:																																																			
TIME: _____			DATE: _____			NAME: _____																																													
EXPLANATION OF SYMBOLS: † Use 24-hour clock to indicate time. Example: 10:15 p.m. = 2215; 10:15 a.m. = 1015 Indicate local standard time or local daylight time																																																			

WS FORM D-1

WS FORM D-1, May 2004 INSTRUCTIONS:

I. Incident Personnel:

1. Complete all items in sections I, III and IV each time a special forecast is requested.
 - a. Example of weather conditions on site:
 - b. If the incident (HAZMAT, SAR) involves marine, put the wave/swell height and direction in the Remarks section.

13. Weather Observations from project or nearby station(s):

Place	Elevation	†Ob Time	20 ft. Wind		Eye Level Wind.		Temp.		Moisture		Remarks (Indicate rain, T'storms, etc. Also wind condition and 10ths of cloud cover)
			Dir	Speed	Dir	Speed	Dry	Wet	RH	DP	
Unit G-50	1530'	0830	NW	6-8	NW	3-5	32		72		Observations from unit RAWS station, 50% cloud cover.

2. Transmit in numerical sequence or fax to the appropriate Fire Weather Office. (A weather forecaster on duty will complete the special forecast as quickly as possible and transmit the forecast and outlook to you by the method requested)
3. Retain completed copy for your records.
4. Provide feedback to NWS utilizing Section III, #27 or separate page. Be sure to include a copy of the spot forecast with any feedback submission including forecaster's name. Feedback to NWS personnel is imperative to assist with future forecasts. Remember, feedback on correct forecasts is equally as valuable as feedback on incorrect forecasts! If spot forecast is significantly different than conditions on site, a second forecast may be required.

SOUTHCENTRAL TRANSMITTERS

Somerset	KIH44	162.550 Mhz.
Mount Vernon	W/W/G70	162.425 Mhz.
London	W/W/G65	162.475 Mhz.
Williamsburg	W/W/G78	162.500 Mhz.
Monticello	W/W/G80	162.425 Mhz.

SOUTHEAST TRANSMITTERS

Hazard	KIH40	162.475 Mhz.
Pikeville	W/W/G69	162.400 Mhz.
Paintsville	W/W/G28	162.525 Mhz.
McKee	W/W/G64	162.450 Mhz.
Pineville	W/W/G62	162.525 Mhz.
Phelps	W/W/G81	162.500 Mhz.
Beattyville	W/W/G67	162.500 Mhz.

NORTHERN TRANSMITTERS

Morehead	W/W/G71	162.425 Mhz.
Stanton	W/W/G61	162.550 Mhz.
Frenchburg	W/W/G63	162.475 Mhz.
West Liberty	W/W/G79	162.450 Mhz.

Broadcasted on Both Northern and Southeast Transmitters

Broadcasted on Both Southcentral and Southeast Transmitters

INTERAGENCY AGREEMENT
for
METEOROLOGICAL SERVICES

Among the
Bureau of Land Management
Bureau of Indian Affairs
U.S. Fish and Wildlife Service
National Park Service
of the
United States Department of the Interior
and the
Forest Service
of the
United States Department of Agriculture
and the
National Weather Service
of the
United States Department of Commerce
BLM Agreement No. 1422RAI02-0030
BIA Agreement No.
FWS Agreement No.
FS Agreement No. 02-IA11130206041
NPS Agreement No.
NWS Agreement No. 201-02-002

1.0 INTRODUCTION.

Fire management and suppression in the nation's wildlands is an on-going concern to the American public and to the Department of the Interior's Bureau of Land Management, Bureau of Indian Affairs, Fish and Wildlife Service, and National Park Service, and the Department of Agriculture, Forest Service, as well as to the Department of Commerce, National Oceanic and Atmospheric Administration-National Weather Service (NWS).

Considerable cooperation and coordination among these agencies exists, which is critical to the success of fire management, suppression and safety. This agreement will refer to the National

Weather Service as “NWS” and the federal wildland fire management agencies as the “Interagency Wildland Fire Agencies.” The National Weather Service is legally mandated to issue weather forecasts and warnings for the protection of life and property. The Interagency Wildland Fire Agencies are responsible for the stewardship and/or protection of lands owned or held in trust by the United States or under the jurisdiction of state agencies.

The NWS and Interagency Wildland Fire Agency responsibilities are defined in Section 5. The NWS Weather Forecast Office (WFO) products and services shall be focused on respective County Warning Forecast Areas (CWFA) for the operational concerns of local wildland fire agency districts, while Interagency Wildland Fire Agencies shall focus on geographic area and national level products and services. The needs of geographic areas are met using a geographic area Memorandum of Understanding and/or geographic specific Annual Operating Plan (AOP) - (see appendix 1 for a suggested outline), and this Interagency Agreement. The NWS and Interagency Wildland Fire Agencies will coordinate and cooperate on developing fire weather policy, standards and guidelines

2.0 AUTHORITIES.

- A. Economy Act of June 30, 1932 (47 Stat. 417; 31 U.S.C. 1535), as amended.
- B. Travel Authority (5 U.S.C. 5702).
- C. Organic Act of 1890 (15 U.S.C. 313).
- D. Joint Project Authority (49 U.S.C. 44720).
- E. Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.).
- F. National Park Service Organic Act of August 1916 (16 U.S.C. 1).
- G. National Wildlife Refuge Administration Act of June 27, 1998 (16 U.S.C. 668dd)
- H. Disaster Relief Act of 1974 (42 U.S.C. 5147).
- I. National Indian Forest Resources Management Act of 1990 (25 U.S.C. 3101 et seq.).
- J. Cooperative Forestry Assistance Act of 1978 (P.L. 95-313, 92 Stat. 365 as amended; 16 U.S.C. 2101 (note), 2101-2103, 2103a, 2103b, 2104-2105).
- K. Federal Fire Prevention and Control Act of October 29, 1974, (P.L. 93-498, 15 U.S.C. 2201 et seq., 88 Stat 1535.)

3.0 PURPOSE.

The purpose of this Inter-Agency Agreement is to combine resources and provide complementary services without duplication to best serve the needs of the public and all agencies for the protection of life, property and resource values to enhance ecosystem health. Accurate

and timely meteorological and fire danger information is required to manage these resources effectively and efficiently. It is also the purpose of this Agreement to set forth the terms and conditions under which the NWS will continue to provide meteorological services to support these efforts as requested by the Interagency Wildland Fire Agencies. It is with this knowledge that this Inter-Agency Agreement is entered into.

This Agreement supersedes the “National Agreement for Meteorological Services in Support of Agencies with Land Management and Fire Protection Responsibilities” among the six participating agencies, as listed above, that was effective June 1983.

4.0 OBJECTIVES.

The objectives of this Agreement are:

- A. To identify meteorological services to be provided;
- B. Establish interagency relationships; and B.
- C. Define obligations of the NWS and Interagency Wildland Fire Agencies.

5.0 RESPONSIBILITIES.

The responsibilities listed are not all-inclusive, but are meant to provide the overall scope of services provided by the respective agencies.

- A. The National Weather Service agrees to: All obligations undertaken by the NWS under this Agreement are subject to the availability of appropriated funds.
- 1. Provide Basic Meteorological Services: Basic Meteorological Services will be provided in accordance with the Annual Operating Plan (AOP) for Fire Weather Service for designated NWS offices. These services will be made available without cost to Interagency Wildland Fire Agencies and will include:
 - a. Routine fire weather forecast and updates during the designated period outlined in the AOP.
 - b. Extended and long-range weather and climate outlooks.

- c. NWS weather observations.
 - d. Fire Weather Watch and Red Flag Warning program.
 - e. Site-specific forecasts for wildland fires or special federal projects (i.e. spraying, seeding, fuels management, or search and rescue operations).
 - f. Provide consultation and technical advice in support of basic services to Interagency Wildland Fire Agencies.
 - g. Provide weather information to a central communication gateway and the internet for Interagency Wildland Fire Agencies' use and further distribution.
 - h. Provide a cadre of Incident Meteorologists (IMET) in support of the fire weather program.
 - i. Maintain a current list of offices providing basic meteorological services.
 - j. National scale short-range fire weather outlooks.
2. Non-Routine Services: These services will be provided by designated NWS offices. Expenses above planned salary and operating costs will be borne by the benefiting agency.
- a. Weather Observer training.
 - b. Weather observation station visits.
 - c. Participation in Wildland Fire Agency training.
 - 1. Course development.
 - 2. Classroom instruction.
 - d. On-site meteorological services.

3. Fire Weather Training: The NWS recognizes the need for specialized training in fire weather meteorology for forecasters. Costs associated with training NWS staff will be borne by NWS. The NWS will meet this need as follows:
 - a. The NWS will ensure all meteorologists producing fire weather products have met the minimum fire weather forecaster training requirements.
 - b. The NWS will provide specialized training for the purpose of qualifying NWS IMETs.
4. Participation in interagency groups: All NWS costs will be borne by NWS.
5. Wildland fire suppression related activities: The NWS will not charge an administrative surcharge or any other expenditure that is not authorized under the Wildland Fire Agencies' Appropriation Acts related to these activities.

B. Interagency Wildland Fire Agencies

Wildland Fire Agencies' programs provide Geographic Area and national products for the strategic role of resource prioritization and utilization. Specific responsibilities of Wildland Fire Agencies are listed below.

1. Operational Support and Predictive Services
 - a. Geographic Area and national level fire weather products, services and assessments will be provided for resource allocation and prioritization.
 - b. Integration of weather and climatic sciences into Geographic Area Coordination Center (GACC) operations.
 - c. Develop value-added products to enhance short and long-range outlooks and projections.
 - d. Provide weather briefings to GACC and NIFC Coordinators and Multiagency Coordinating Groups.
 - e. Manage weather and climatology portions of GACC web site.
 - f. Manage agency fire weather infrastructure.

g. Smoke management.

2. Program Management

Program management of federal land management and fire agencies' fire weather responsibilities, which includes:

- a. Program coordination with state agencies.
- b. Programmatic guidance, evaluation and certification.
- c. Advice and staff support to Fire Directorate
- d. Manage weather station network.
- e. Liaison between field users and service providers.
- f. Participation in activity reviews.

3. Monitoring, Feedback and Improvement

- a. Transmit feedback to product and service providers.
- b. Suggest improvements to providers of products and services received.
- c. Advise agencies on quality control of weather observations.
- d. Coordination with NWS and users in assessment and evaluation of program effectiveness.
- e. Fire weather expertise in accident/incident investigations.

4. Technology Transfer

- a. Transfer meteorology and climatology knowledge to field level personnel.
- b. Promote proper usage by agency personnel of weather and climate products and services.
- c. Conduct training/expertise needs assessment.
- d. Coordinate data and technology acquisition.
- e. Participation on training cadre.

5. Agency Computer Systems

Where fire management computer systems are locally available, access to the systems will be granted to NWS to provide services, as needed. Costs will be borne by the Interagency Wildland Fire Agencies for requirements that are beyond the distribution of weather information through a central communications gateway.

6. Fire Weather Observations:

- a. Provide routine surface weather observations to NWS.
- b. Provide all equipment, equipment maintenance, inspection of weather observation sites, and data quality control.
- c. Pay all travel and per diem costs associated with Interagency Wildland Fire Agencies' requests for visits of NWS personnel to weather observing sites.
- d. Provide for collection, storage and retrieval of remote automatic weather stations (RAWS) data.
- e. Provide observations for site specific and other special forecasts.

7. On-Site Meteorological Support:

- a. Pay costs directly associated with on-site meteorological support by NWS personnel. This includes costs incurred by the NWS IMET duty station.
- b. Provide logistical and weather observation support to NWS personnel at onsite operations.
- c. Provide and pay costs associated with telecommunication services.

8. Training:

- a. Pay per diem and travel costs for NWS personnel instructing and providing course development in Wildland Fire Agency training.
- b. Provide technical assistance, instruction, and supporting material for NWS sponsored fire weather training sessions.

9. Other Non-Routine Services

Interagency Wildland Fire Agencies will provide logistics support and pay all overtime, travel, and per diem costs of NWS personnel associated with the provision of all other special fire meteorological services, including Wildland Fire agency approved wildland fire familiarization for NWS personnel.

6.0 JOINT RESPONSIBILITIES:

NWS and Interagency Wildland Fire Agencies shall jointly prepare national and Geographic Area specific MOUs and/or AOPs for Fire Weather Services that will set policy and procedures at GACC, NIFC, state or forecast office level, and shall include:

- A. Shared responsibilities of all participants shall include, but not limited to weather briefings, training, research, product/service verification as outlined in Geographic Area specific AOPs.
- B. Provision for monitoring, feedback and improvement.

- C. Procedure for documenting, monitoring and evaluating fire weather products, briefings and services delivered.
- D. Provision for monitoring and evaluating advances in science and technology.
- E. Provision for efficient means for technology transfer.
- F. Provision for participation in fire weather research activities.
- G. Provision that on-site IMET services may be provided by Interagency Fire Weather Meteorologist meeting NWS standards only when NWS IMETs are not available to meet Wildland Fire Agency resource requests on a national basis. The coordination for Interagency Fire Weather Meteorologists will be done between the NWS IMET coordinator and the National Interagency Coordination Center.
- H. Provision that NWS meteorologists and Interagency Wildland Fire Agency meteorologists stationed at GACCs and at NIFC will work together to ensure fire agency decision makers receive consistent and coordinated fire weather products and services.
- I. Provision that the NWS and Interagency Wildland Fire Agencies will jointly develop and share technology including meteorological software and data, Advanced Technology Meteorological Units, portable weather stations, etc. to improve abilities and performance.
- J. The NWS and Wildland Fire Agency meteorologists shall work closely in all phases of the fire weather forecast and warning program to resolve concerns and avoid potential inconsistencies in products and services prior to delivery to fire agency customers. The goal of all agencies is to maximize firefighter and public safety through a coordinated delivery of consistent services.
- K. The Parties recognize that, given the current administrative process for payments for fire suppression activities, it is not feasible to obligate the full amount of funds that may be required by this Agreement, because the Agreement does not constitute a binding obligation under 31 U.S.C. § 1501 since it cannot anticipate the specific goods or services for which payment will be requested, or the individual payment amounts, in each future case. This information can only be provided by Resource Orders executed when the goods or services are requested. At the same time, the Parties recognize that Resource Orders are insufficient to constitute a binding obligation under the statute because there is no evidence of intent to be bound, no authorized signatures are present, and no legal

authorities are cited. However, these requirements are satisfied by the Agreement. The two documents, when taken together, contain all the elements required for an obligation under the statute. Hence, the Parties agree that this Agreement shall automatically be incorporated by reference into any Resource Orders issued under it, and that nobligation of funds will occur at the time the NWS presents a copy of this Agreement and the Resource Orders for payment. The parties also agree to work toward a more efficient resolution of this administrative process for obligation and payment of fire suppression funds.

7.0 STATEMENT OF WORK.

Procedures for notification of and obtaining services from the NWS will be prepared and specified in the Annual Operating Plans (AOP) and/or in the MOUs for the Geographic Area Coordinating Centers, and in the Geographical Area and National Mobilization Guides. An electronic copy of the National Mobilization Guide can be viewed via www.nifc.gov - select “National Interagency Coordination Center” – select “References” link to National Mobilization Guide.

8.0 TRANSFER OF FUNDS.

- A. Billing and collection procedures will follow the Intra-governmental Payment and Collection (IPAC) system process.
 - B. Wildland Fire Suppression Activities: Transfers under this subsection are under the Disaster Relief Act, 42 U.S.C. § 5147. Reimbursable costs are estimated not to exceed a maximum of \$2,000,000.00 per fiscal year. In the event this amount is insufficient for a particular fiscal year, this Agreement may be modified to increase the amount of funding, subject to the availability of funds. This Agreement is automatically incorporated by reference into any Resource Order that is issued under it, constituting a binding obligation. The Interagency Wildland Fire Agencies warrant that they will administratively reserve these funds to ensure that the funds will be available when the obligations are recorded. The recording of the obligations will occur upon the receipt of the billings from the NWS by the applicable Interagency Wildland Fire Agency. The billings, inclusive of copies of this Agreement, the Resource Order(s), and expenditure documentation, will define the specific services, supplied goods and costs for each order, and subsequent obligation and payment.
-
- 1. Reimbursement payments for suppression-related activities will be accomplished by submission of billings, which are inclusive of copies of the Resource Orders that define the requested services and goods, and the expenditure back-up documentation. The NWS will not charge an administrative surcharge or any other expenditure that is not

authorized under the Wildland Fire Agencies' Appropriation Acts related to these activities

2. It is the responsibility of the requesting agency/office to provide billing instructions to the NWS office that provided the service, which includes the items listed below. It is also the responsibility of the requesting agency/office to conduct any required verification of costs, authorization of expenditures and reconciliation of payment.
 - a) The fire name, jurisdictional unit, and incident number (The copy of the Resource Order generally includes this information);
 - b) Applicable support documentation requirements;
 - c) A copy of this Agreement complete with signatures;
 - d) Identification (name and phone number) of NWS financial contact;
 - e) Provide information to NWS regarding which payment center to send the billings for processing; and
 - f) Billings and support documentation are to be submitted to the appropriate payment center by the NWS within sixty-days of completion of service.

C. Non-Wildland Fire Suppression Activities: Obligation of funds and payments for non-wildland fire suppression activities that are included in the Annual Operating Plan (AOP) shall be accomplished by Task Orders against this Agreement between the concerned agencies by the responsible officers at the appropriate level operating within their authority.

1. All funding obligations must be placed against the individual agency/office's Task Order number and not against this Agreement number.
2. Task Orders to this Agreement may be approved and signed for the NWS by the Director, Office of Climate, Water and Weather Services.
3. Each federal agency shall make direct settlement from its own funds for all liabilities it incurs under this Agreement.
4. The NWS will not charge any agency that is signatory to this Agreement an indirect administrative surcharges for activities addressed in the respective Annual Operating Plan(s) and Geographical Area MOUs, and are requested through Task Orders or Resource Orders under the National Mobilization Guide.

5. Task Orders may be prepared in any format acceptable to the agencies involved in each project. At a minimum, each Task Order written in support of this Agreement will include the following items:
- a) Detailed description of services to be done or supplies to be delivered;
 - b) Description of the deliverables;
 - c) Performance period for completion;
 - d) Cost estimates;
 - e) Identify responsible project officials for each Task Order agency;
 - f) Payment procedures (applicable billing procedures, identification of codes, method of payment—advance/reimbursement; and Signature(s) by authorized personnel for each Task Order agency.
 - g) Signature(s) by authorized personnel for each Task Order agency.

9.0 TERM OF AGREEMENT.

The terms of this Inter-agency Agreement shall become effective with and upon execution by NWS and any or all Interagency Wildland Fire Agencies and shall remain in effect for a period of five-years from the date the last signature was placed on the signatory section, or until such time as the Inter-agency Agreement is terminated by mutual agreement. Any signatory may terminate their participation in this Agreement by written notice to all other signatories provided that such notice shall be given between the dates of October 1 of any year and February 1 of the following year. Full credit shall be allowed for each party's expense and all non-cancelable obligations properly incurred up to the effective date of termination. The remaining signatories may continue the provisions of this Agreement as long as the NWS remains a signatory.

10.0 RESOLUTION OF DISAGREEMENT.

Should disagreement arise on the interpretation of the provisions of this Agreement, or modifications thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement on interpretation is not reached within thirty-days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution. Conflicts and/or disagreements that cannot be resolved at the regional (GACC) level will be elevated to the National Fire Weather Program Managers for the NWS and Interagency Wildland Fire Agencies. If the conflict cannot be resolved at the National Program Managers level, the conflict will be elevated to the Agency Director level (NWS and applicable Wildland Fire Agency Director) for final resolution.

11.0 GENERAL PROVISIONS.

A. Parties to this Agreement are not obligated to make expenditures of funds or provide services under terms of this Agreement unless such funds are appropriated or services are authorized by either the State Legislatures or the Congress of the United States, or are otherwise available under Section 101 and 102 of the Annual Appropriations Act for Interior and Related Agencies.

B. The points of contact listed in Section 13 will review this Agreement annually.

C. Modifications to this Agreement may be initiated by any signatory agency. The modifications shall not take effect until documented and signed by all signatory agencies.

1. The BLM is designated as the agency responsible for all administrative oversight of modifications to this agreement.

2. Modifications to this Agreement may be approved for the NWS and signed by the Director, Office of Climate, Water and Weather Services, or pursuant to NWS protocol.

D. The signatory Interagency Wildland Fire Agencies agree to consider expansion of this Agreement to cover areas of mutual concern, e.g., changing technology and improved procedures, as opportunities for such cooperation become available.

12.0 WAIVER.

Each party to this agreement does hereby expressly waive all claims against the other party for compensation for any loss, damage, personal injury or death occurring in consequence of the performance of this agreement.

13.0 PRINCIPAL CONTACTS.

The Points of Contact are responsible for coordinating an annual review of the currency and adequacy of this Agreement among the signatories, and/or their designees.

National Weather Service:

National Fire Weather Program Manager

Rusty Billingsley

National Weather Service

3833 South Development Ave.

Boise, ID 83705

208/334-9824 – Office

david.billingsley@noaa.gov

Interagency Wildland Fire Agencies:

NIFC Fire Weather Program Manager

Rick Ochoa

National Interagency Fire Center

3833 South Development Ave.

Boise, ID 83705

208/387-5451-Office

rick_ochoa@nifc.blm.gov

14.0 DEFINITIONS.

When the following terms are used in this Agreement, or in an AOP, such terms will have the meanings stated below.

A. Annual Operation Plan for Fire Weather Services (AOP): A procedural guide, based on the National Interagency MOU and applicable Geographic Area MOUs, which describes fire meteorological services provided within the Geographic Area of responsibility, including NIFC. At a minimum the AOP will include the items in Appendix 1, Annual Operating Plan - Required Elements and Suggested Format.

B. Assessment: Fire weather and/or fire danger product based on a thorough evaluation of all pertinent sources of meteorological and fire danger information.

C. Basic Meteorological Services: Basic meteorological services are those state-of-the-science meteorological forecasts, warnings, observations and statements produced at a designated NWS office.

- D. Fire Weather Watch:** Fire Weather Watch is issued to advise of conditions, which could result in extensive wildfire occurrence or extreme fire behavior, which are expected to develop in the next 12 to 48 hours, but not more than 72 hours. In cases of dry lightning, a Fire Weather Watch may be issued for the next 12 hours. Fire Weather Watch meteorological and fuel criteria will be defined in the AOP.
- E. Geographic Area:** A geographic boundary designated by Interagency Wildland Fire Agencies, where these agencies work together in the coordination and effective utilization of resources within their boundaries. The National Interagency Mobilization Guide identifies the areas encompassed by the eleven Geographic Areas.
- F. Geographic Area Memorandum of Understanding (MOU):** A document, based on the National Interagency Memorandum of Understanding for Meteorological Services, which establishes local policy to meet unique needs of a Geographic Area.
- G. Incident Meteorologist (IMET):** A meteorologist specially trained to provide on-site meteorological support of Wildland Fire Agency designated incidents.
- H. Non-Routine Services:** Meteorological services uniquely required by interagency Wildland Fire Agencies, which usually are not provided from a designated NWS office.
- I. On-Site Meteorological Services:** Special service which dedicates an IMET to an incident so that they are removed from their normal duties.
- J. Predictive Services:** Those Geographic Area/national level fire weather and/or fire danger services and products produced by Wildland Fire Agency meteorologists in support of resource allocation and prioritization.
- K. Red Flag Warning:** Red Flag Warning is used to warn of impending or actually occurring critical weather conditions that could result in extensive wildland fire activity. A warning will be issued when the forecast time of onset is less than 24 hours. Red Flag Warning meteorological and fuel criteria will be defined in the AOP.
- L. Routine Fire Weather Forecasts:** A Routine Fire Weather Forecast is a scheduled narrative and/or matrix forecast of weather parameters pertinent fire management activities in support of protection of life, property, and resources at risk in a given area. The number of parameters may vary due to regional weather requirements, but normally include a brief weather synopsis, expected weather and clouds, duration of precipitation, maximum and minimum temperature/relative humidity, wind direction and speed, transport and stability

parameters, and lightning activity level. These forecasts normally cover the next 48 hours and may include input for the computation of National Fire Danger Rating System indices. These forecasts may also include long-range outlooks.

M. Site Specific Forecasts: Site-specific forecasts are issued when requested by Interagency Wildland Fire Agencies for wildland fires. These forecasts differ from routine fire weather forecasts by incorporating greater detail in timing, higher resolution of terrain influences, and incorporate meso-scale and sometimes micro-scale weather influences impacting the site. These may be generated from an office with Wildland Fire supplied information (i.e., location, weather observations, objectives) or generated by an IMET assigned to the incident. Forecast formats may vary but all are highly tailored to satisfy requirements of the incident objectives.

N. Wildland Fires: All ignitions that occur on wildlands.

Signature Page

This Operating Plan becomes effective when all parties have signed the approval letters and will be effective until superseded by the 2006 Operating Plan.

An approval letter will be sent to the agency listed below. Copies of these letters will be kept on file at the National Weather Service Forecast Office (Jackson).

National Weather Service		
Office	Approving Authority	Date Signed
NWS Jackson, KY	MIC	
Central Region Headquarters Kansas City, MO	Regional Operations Services Meteorologist	

User Agencies: The Kentucky Coordination Center Represents federal and state users such as the Department of Agriculture (USFS), National Park Service and Kentucky Division of Forestry.

Office	Approving Authority	Date Signed
KICC Winchester, KY	KICC Center Manager or designee	